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Evaluation of the Patients' Perception Regarding Endocavitary Ultrasound Procedure at the Nyeri Level 5 Hospital, Kenya

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Abstract:

Background: The adoption and utility of endocavitary ultrasound examinations in Kenya has not gained much prominence despite its availability and superiority in terms of image resolution. The reasons for low utilization are not yet clear and there exists a gap in terms of available literature regarding the patients' attitude towards the endocavitary ultrasound procedure. In order to promote widespread acceptability and utilization of this particular sonographic approach in the pelvic evaluation of female patients, the researchers sought out to explore the influence of patients' attitude and perception towards the examination. Objectives: To evaluate the female patients' perception regarding endocavitary ultrasound examination at Nyeri Level 5 Hospital. Specifically, the researchers sought to determine the effects on emotions that endocavitary ultrasound poses on the female patients and how these perceptions on endocavitary ultrasound influences female patients expectations. Methodology: This study employed the descriptive cross-sectional survey design based on self-administered questionnaire to gather the relevant data. The study population was female patients that underwent endocavitary pelvic ultrasound examination. The patients were asked on how they perceived endocavitary ultrasound before and after the examination. Results: 51% accounted for those female patients between the age of 25 to 34 years, 30% between the age of 15 to 24 years and 17% between the ages of 35 to 44 years. The level of education on these female patients varied dramatically, those with primary level of education constituting 7% secondary level 7% those with college level of education 46% and no formal education 30%. The occupation of these patients comprised civil servants accounting for 12%, self-employed with 30% farmers 28% and homemakers 28%. Thirty percent (30%) felt tense towards the procedure while 12% was upset by the procedure and 53% were worried of the procedure. Of those that were worried about the procedure, 80% anticipated pain, 90% had affinity of experiencing discomfort and the 97% felt embarrassed by the procedure. Only 12% would undergo for a similar examination again while 87% expressed unwillingness of undergoing the same procedure in future. Conclusion: The patients perception hinged on negative feelings in context when the patient has no prior knowledge of what Transvaginal sonography (TVS) entailed. Endocavitary examination calls for prior patient education or explanation as to what the procedure entails in order to enhance acceptability by the patient.

Keywords: Patients perception towards endocavitary ultrasound, transvaginal ultrasound in Kenya

1. Introduction and Background Information

Ultrasound is a medical imaging modality that utilizes high frequency sound waves beyond the human hearing range that is effective in aiding the visualization of the internal body organs and thus helps determine any underlying pathology that belies patients' complaints. The routes through which the sonographer interrogates the patients tissues by ultrasound are abdominal (transabdominal ultrasound), endocavitary (transvaginal or transrectal or transoesophageal), and Transcutaneous ultrasound for vascular system and superficial structures like the thyroid gland. Due to its superior resolution, endocavitary ultrasound examination is bound to gain prominence as a more reliable modality for diagnosing most pelvic pathologies of female patients.

Endocavitary ultrasound may be psychologically distressing and invasive to female patients particularly in the examination of pelvic region depending on their educational level, culture, and virginity. Some patients may be anxious of the procedure; some may have fear that it might be a painful procedure. Female patient's perception towards endocavity ultrasound is hinged to the stimulus that invokes the five senses.

Endocavitary ultrasound is an examination that involves the senses of sight, touch, smell and hearing. The sight of the sonographer wielding on his/her hand the endocavitary ultrasound probe may provoke some emotional reaction on the patient considering the shape and length of the ultrasound probe. The endocavitary ultrasound examination involves the sonographer inserting of the lengthy probe into the patient through the vaginal orifice or rectum /anus orifices thus triggering some responses in the patient for it touches the patient's intimate body parts. Patient may anticipate pain or discomfort towards the procedure. The sonographer explains the procedure to the concerned patient and the sonographer may perceive any smell in the course of performing the procedure.

Psychologist Jerome Bruner has developed a model of perception in which people form opinions on particular stimuli to unfamiliar target. In this case, the female patient who is subject to endocavitary ultrasound may perceive the procedure as unfamiliar, and may want to learn and have a knowledge of the procedure that may categorically influence the patient to form opinions. The basis of categorizing follows the object, affect, functional, and formal routes. The object here is the endocavitary probe and the ultrasound machine in that they represent to the female patient some mental imageries; the affect category deals with how the patient reacts emotionally after having experienced endocavitary procedure. The functional category involves whether the patient comprehends the function of the ultrasound machine and lastly the formal category gives identity based on cultural values or science or law.

Alan Saks and Gary Johns, identifies three components of perception; the perceiver, the target, and the environment. The female patient in this case becomes the perceiver of the endocavitary ultrasound procedure and depending on her knowledge about the endocavitary examination her response is likely to vary based on her past experience whereby it can be either for the first time or second time. In case it is for the second time, the experience of examination during the first encounter may be positive or negative feelings. In different motivational or emotional states, the female patient will react to or perceive something in different ways. Also in different situations, she might employ a "perceptual defense" where she will tend to "see what she wants to see" (<http://www/Wikipedia.com>). In other words, first impression of the endocavitary examination paints a mental picture with which the female goes with after the procedure.

The target in this case for the female patient is the sonographer and the ultrasound probe. The sonographer's age, gender, professional conduct and the ultrasound equipment provide stimuli to which the female patient responds to during the endocavitary examination.

Lastly, the setup where endocavitary examination is being carried out does also provide stimuli depending on how many sonographers are involved and whether there is gender balance plus the adequacy of the environment in terms of privacy and confidentiality.

After the female patient has perceived endocavitary ultrasound, she may develop an attitude towards the endocavitary procedure that could be favorable or unfavorable. Attitudes do depend on the patients' perception and disposition. Consequently, the investigation of patients' attitudes towards endocavitary ultrasound is subject to either positive or negative evaluations of this mode of examining patients.

2. Statement of the Problem

Despite Transvaginal sonography (TVS) being a medical intervention, it brings to fore cultural and social aspect of invasion of a female patient's private life. The focus of the study in Nyeri level five hospital is to find out how to female patients perceive and view endocavity ultrasound examinations.

Scholars have argued that endocavity ultrasound may seem to be some form of rape or toy sex. This is so because the endocavitary probe's appearance mimics male genitalia. As a result, some patients may feel violated if the procedure is performed on them without their consent. In some studies done in UK and USA some patients have actually litigated the hospital for rape or gross violation of their reproductive health. Here in Kenya we have not heard of litigation for the patients have huge trust on what medical practitioners prescribe to them. However, it does not guarantee that patients may not litigate sonographers against violation in the near future. As more and more patients become aware of their medical rights, questioning of the endocavitary modality may be soon be the norm rather than an exception. The nature of endocavitary ultrasound examination provokes fundamental questions regarding how far endocavitary ultrasound infringes on patients rights. All these are aspects and stimuli that guide patient's perceptions consequently, the more reason this research is to be carried out and find out how do patients in Nyeri level five hospitals perceive the endocavity modality within the radiology department. The assumption that endocavity is invasive in nature and that it seems uncomfortable to female patient is of great need to investigate if for sure patients do feel that way.

2.1. The Research Question

What are the female patient's perceptions towards endocavitary ultrasound examination at the Nyeri level five Hospital?

2.2. The Main Objective

To evaluate the female patients perception on endocavitary ultrasound examination at Nyeri level five hospitals.

2.3. Specific Objectives

- To evaluate how the socio-demographic characteristics of the female patients influence perception towards endocavity ultrasound.
- To evaluate the attitude of the female patients towards the endocavity ultrasound procedure.
- To evaluate on how perception of endocavitary ultrasound impacts on female patients future expectations.

3. Literature Review

3.1. Trans Vaginal Sonography (TVS) as an Endocavitary Imaging Modality

Brosen and Wamsteker (1997) points out that TVS is an endocavity dynamic scanning modality in which a transducer is inserted into vagina. It is an organ oriented procedure because it visualizes organs in short distances in which the focus is on single organ or part of organ and it usually give the details of the organ are not picked when using the TAS. That's to say TVS provides clear images of the region of interest, provided that the targeted organ is within the focal range of the probe, and that the probe is placed in proximity to the organ in question like in the uterus or ovaries.

The main reasons why TVS is requested as modality of choice over TAS are ;TVS gives better detailed pelvic lesions and details of the endometrium ,Rumack (2005).They further contends that the goal of TVS is the identification of a normal from abnormal gestation by early visualization of gestational sac and its content. Instances of ectopic pregnancy in which a female patient presents with vaginal bleeding, pain, palpable mass may be pointers of clinical features of early pregnancy failure and the only way to confirm this is TVS. In such circumstances patients options and even perceptions change. Because of the nature of the female patient's condition sometimes her perception of the TVS may not matter so much if it will facilitate in the management of the condition.

From the research carried out by Frates and Laing (1995) they argue that the combination of sensitivity test and specific pregnancy test with high resolution TVS early ectopic pregnancy is diagnosed with more confidence allowing prompt intervention if patient is at risk. And they recommended TVS as modality of choice for diagnosis of ectopic pregnancy. However in their study they also note that in physiologically distended examination using TAS is gestation is identified it is a complete examination, but when there is doubt in TAS in identifying confidently gestation sac then TVS may supplement TAS in such cases to give more information of the gestation location and state.

While Clement et al. (2003) studies on TVS shows that has been a normal modality in obstetrics and gynecology examination and it has only be subjected to unselected women with normal pregnancy as later development. As such, it is "an invasive investigation and there are a number of reasons for hypothesizing that it may be a difficult procedure for some women". From available literature, they point out that some cases, some women find the procedure distressing and some it causes or triggers post traumatic symptoms. Some women have gone further to seek medico legal cases involving transvaginal scans. The limitation of this study is that it focused on women who were still within the hospital setting and making it not objective as patient may not be free to express dissatisfaction because they will want to fit in the social strata.

3.2. Transrectal Ultrasound

In the study carried in the USA by Timor-Tritsch et al (2003) demonstrates that it is possible to use transrectal sonography (TRS) for female patients in places where TVS is contraindicated in examining the female pelvis. In the study forty two female patients were carefully selected and counseled before the procedure. In the trans rectal ultrasound the TVS probe, which was lubricated and slowly advanced into the rectum with similar technique to that of TVS. Conditions that prompt the use of trans rectal in place of TVS for female patients are virgin patients, elderly patients who may experience discomfort when using TVS, young patients with agenesis of vagina, obstetric patients with premature rupture of membranes, patient rejection to TVS but is advised of TRS may accept, cervical pregnancy, patients who have undergone laparoscopic cystectomy for dermoid cyst with vaginal bleeding.

Not only is TRS is useful in draining of inflammatory pelvic fluids, but also used in female patients in guided procedure in place of TVS. From the studies conducted by Kushnir (1997) suggest that TRS is useful in diagnosis of imperforated hymen that is in the assessment of canalization of the vagina. Lopez-Rasines et al (1998) also in their studies found out that TRS is instrumental in diagnosis of vagina pathology; they used six female patients to demonstrate this.

However, in as much TRS is successful cases of its pitfall are also evident. The approach through the rectum has been criticized in comparison to the size of the probe and the anal sphincter, which is not as elastic as the vaginal orifice. There are fears that trauma may occur when using TVS probes through the rectum and this pose huge challenge on the usage of TRS.As far as the acceptance of the scanning route is concerned our experience was that following the explanation of the procedure some patients expressed distinctive negative feelings towards the 'unorthodox' scanning mode. The rate at which the sonographer of TRS preference to use TRS is not convincing rarely, if any do love using TRS with the radiology department and so little research has been done of the rate of use of TRS. Trish et al (2004) prescribes increase the awareness of sonographers of the use of TRS scanning alternative for patients with absolute or relative contraindication to TVS. They are basing their belief in the method not only on the published reports their comparative study, but also on the fact that TRS is not significantly different from TVS. That is the tip of the probe in the rectum is in the same general location as it would be using the vaginal approach. It is a fact that the probe within the rectum can slide slightly higher up in the pelvis than can the vaginally placed probe due to the relative shortness of the vagina. Theoretically, it enables the scanning of structures which are beyond the focal range of the transvaginal placed probe.

3.2.1. Study Design

This study employed the descriptive cross-sectional survey design, on the female patients coming for endocavity ultrasound examination. The female patients were asked on how they perceived endocavity ultrasound before and after the examination, particularly on cases in which the sonographer /sonologist needed to use endocavity in preference to transabdominal approach.

3.2.2. Study Variables

- Dependent variable
 - Patients' perceptions towards endocavity ultrasound.
- Independent Variables
 - Age
 - Gender
 - Religion
 - Endocavity ultrasound procedure
 - Privacy in terms of number of operators of the procedure, room context
 - Gender and age of the sonographer

3.3. Study Area

3.3.1. Position and Size

Nyeri Level-5 Hospital is situated within Nyeri town, which is approximately an area of 3337KM². Nyeri is approximately 150 km north of Nairobi towards Mount Kenya. Nyeri serves as the provincial headquarters of central province, Kenya and also is the county headquarters of Nyeri. It is located on the western slopes of Mount Kenya. It borders five other counties, Kirinyaga to the east, Nyandarua to the west, Muranga to the south, Laikipia to the north and Meru to the north east.

3.3.2. Population

The county has a population of 693558 as per public population projection conducted on 2009. The county has 6 constituents; Nyeri town, Othaya, Tetu, Kieni, Mathira and Mukurwe-ini

3.3.3. Economic Activities

Nyeri remarkably occupies the most fertile lands of Kenya highlands. Two seasons are enjoyed each year and weather is favorable for diverse agricultural activities, main crops grown being; maize, beans, yams, cassava, millet, sorghum, bananas and arrowroots among others. This is done alongside the domestic livestock of cows, chicken, goats, and sheep. This keeps the people well fed throughout the year. Instances of drought or famine are extremely rare.

With the advent of colonialism, many cash crops were also introduced such as; coffee, tea and macadamia nuts. They are grown for sale with little being processed for domestic consumption.

3.3.4. Education

Nyeri County is renowned for its numerous learning institutions. As of 2013, there were 684 primary schools serving 145906 students and 194 secondary schools serving 47524 students. Institutions of higher learning include; Dedan Kimathi university, Moi University, Kenyatta University, Karatina university. Nyeri technical training college, two teachers colleges

3.3.5. Health Facilities

Notable hospitals in Nyeri are: Nyeri provincial general hospital (currently level 5 hospital), Karatina district hospital, Nyeri district hospital, Mukurwe-ini sub-district hospital and Othaya Sub- district hospital. Several private hospitals, including Consolata hospital, Mary Immaculate hospital, Mount Kenya hospital, and health centers and clinics

3.4. Study Population

The study focused exclusively on female patients undergoing pelvic examinations at the radiology department for ultrasound, for the months March, April, and May 2014.

3.5. Target Population and Sample Size

Target population comprised all adult female patients of reproductive age that sought for ultrasound investigations at the radiology department. Through this study, the researchers interrogated randomly sampled 39 female patients of reproductive age that underwent endocavitary ultrasound at the Nyeri level five hospital for the months March, April, and May 2014.

3.6. Data Collection Method

Self-administered Questionnaire was given to all female adult patients who were subjected to endocavitary ultrasound examination.

3.7. Data Analysis and Presentation

Data collected was analyzed utilizing SPSS and presented in tables, graphs, pie charts and percentages, comments stated was in accordance to the results analyzed and presented in prose format.

3.8. Ethical Considerations

Numbers, instead of the real names of the respondents was issued and used when filling the questionnaires for the purpose of anonymity and observance of patient’ confidentiality as stipulated in the doctor-patient confidentiality ethics. The authority to carry out the research project was granted by Ministry of Health, Ministry of Education science and Technology through KMTC, and the H.O.D medical imaging sciences department. The participants signed informed consent form.

4. Data Analysis and Presentation

4.1. Demographic Information

4.1.1. Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	39	100.0	100.0	100.0

Table 1: Sex of the Respondent

4.1.2. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-24	12	30.8	30.8	30.8
	25-34	20	51.3	51.3	82.1
	35-44	7	17.9	17.9	100.0
	Total	39	100.0	100.0	

Table 2: Age of the Patient

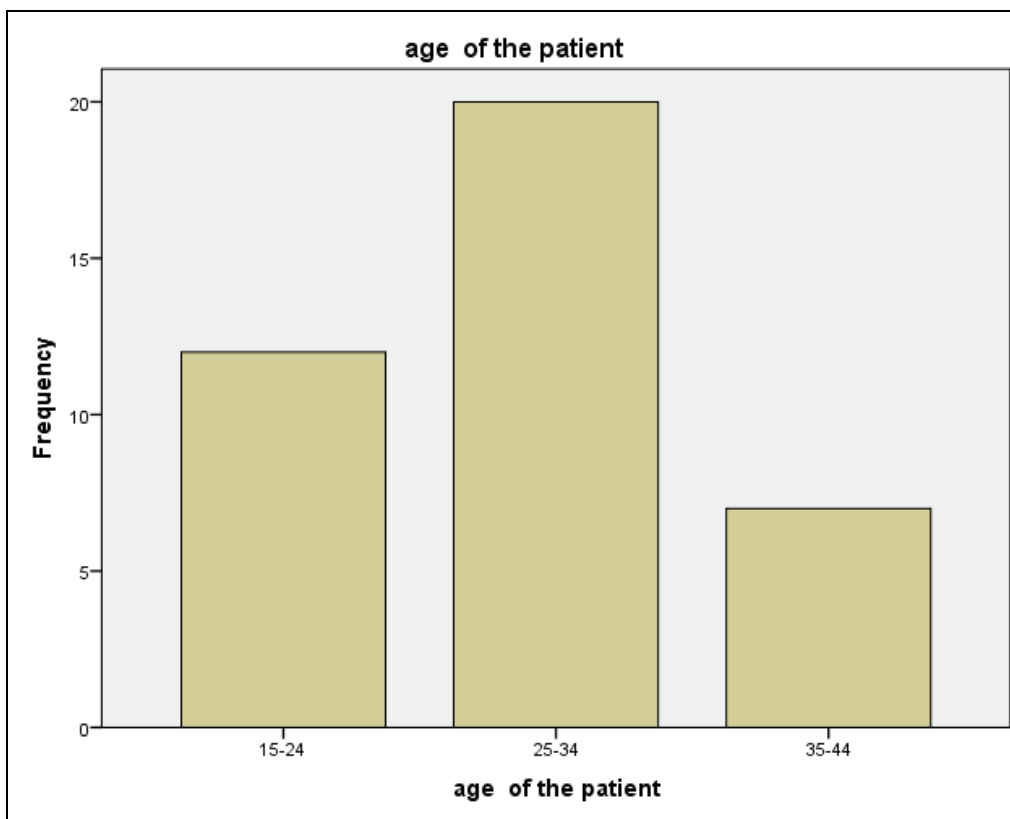


Figure 1: Age of patient

4.1.3. Religion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Christian	38	97.4	97.4	97.4
	no religion	1	2.6	2.6	100.0
	Total	39	100.0	100.0	

Table 3: Religion of the Respondent

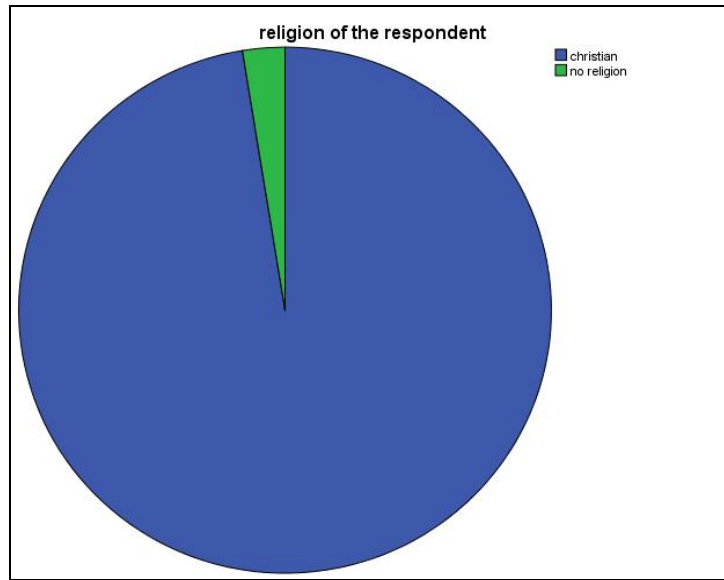


Figure 2

4.1.4. Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	primary	3	7.7	7.7	7.7
	secondary	3	7.7	7.7	15.4
	college	18	46.2	46.2	61.5
	none	12	30.8	30.8	92.3
	others	3	7.7	7.7	100.0
	Total	39	100.0	100.0	

Table 4: Education Level

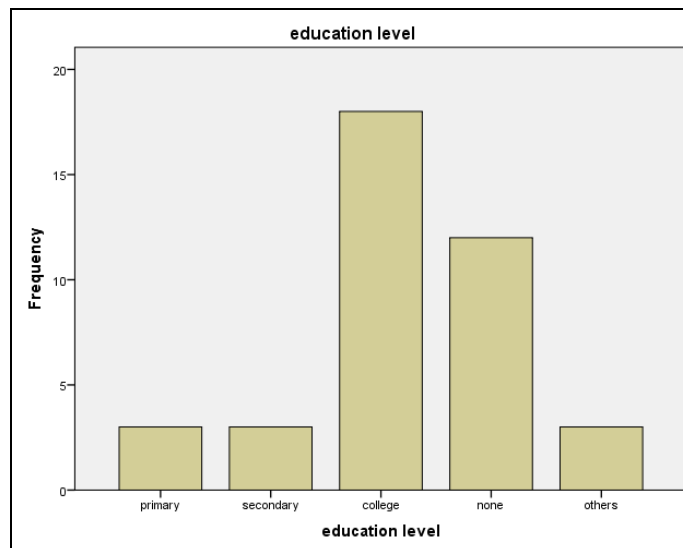


Figure 3

4.1.5. Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	civil servant	5	12.8	12.8	12.8
	self employed	12	30.8	30.8	43.6
	farmer	11	28.2	28.2	71.8
	housewife	11	28.2	28.2	100.0
	Total	39	100.0	100.0	

Table 5: Occupation



Figure 4

4.2. Part B

	Indicators	Yes%	No%
1	Do you know what is TVS	18	82
2	Have you ever been scanned using TVS probe	3	97
3	Are you afraid of TVS examination	92	8

Table 6: Knowledge of the respondent on the endocavity sonography

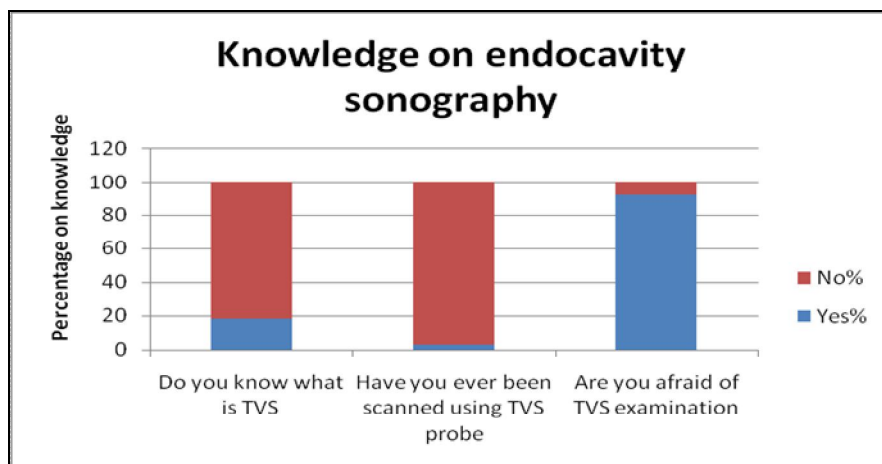


Figure 5

What effects and emotions do the experience of endocavity ultrasound has on the female patients Patients' feeling if TVS examination was performed on them.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	feel tense	13	33.3	33.3	33.3
	feel upset	5	12.8	12.8	46.2
	feel worried	21	53.8	53.8	100.0
	Total	39	100.0	100.0	

Table 7: feeling of TVS exam

How perception of endocavity ultrasound and its impacts on female patients expectations
Rating patients worry regarding TVS examination

	Indicators	Most worried %	Least worried %
1	Anticipated pain	80	20
2	Feeling discomfort	90	10
3	Feeling embarrassed	97	3
4	Not certain about what will happen during scanning	74	26

Table 8

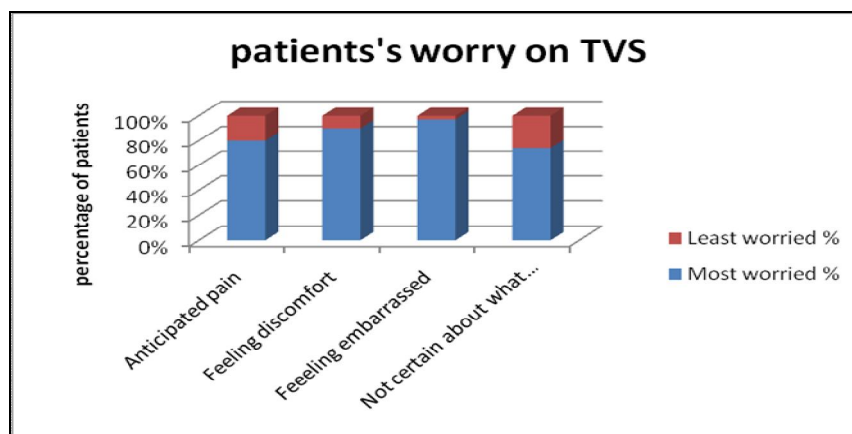


Figure 6

How the perception of endocavity ultrasound motivates or demotivates the female patients in undergoing the procedure in the future. The question was asking the respondents if they can have TVS scan in future.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agree	5	12.8	12.8	12.8
	disagree	34	87.2	87.2	100.0
	Total	39	100.0	100.0	

Table 9: having vaginal/rectal scan in future pregnancy

4.3. Correlation Analysis

Correlation analysis was done to find out the association between the dependent variable and the independent variables. All the independent variables were tested, age and knowing what TVS examination is, were correlated to the feelings of TVS exam as shown below:

Correlations			
		feeling of TVS exam	age of the patient
feeling of TVS exam	Pearson Correlation	1	-.330*
	Sig. (2-tailed)		.040
	N	39	39
age of the patient	Pearson Correlation	-.330*	1
	Sig. (2-tailed)	.040	
	N	39	39

*. Correlation is significant at the 0.05 level (2-tailed).

Table 10: Correlate between feeling of TVS and age

There is a negative association (-0.330) between the feelings about TVS and age of the patient (P value of 0.040).

Correlations			
		feeling of TVS exam	what is TVS
feeling of TVS exam	Pearson Correlation	1	.442**
	Sig. (2-tailed)		.005
	N	39	39
what is TVS	Pearson Correlation	.442**	1
	Sig. (2-tailed)	.005	
	N	39	39

** . Correlation is significant at the 0.01 level (2-tailed).

Table 11: Correlate between feeling of TVS and what is TVS

There is a positive association (0.442) between the feelings about TVS and knowing what TVS is to the patient (P value of 0.005).

5. Discussion

This study focused on female patient perception on endocavity sonography and how the level of knowledge, emotional effects of the examination, motivational or demotivation factor and the impacts on patient's expectations has on the procedure. The target group of the study was female patient of age group between 15 to 44 years. 51% accounted for those female patients between the age of 25 to 34 years, 30% between the age of 15 to 24 years and 17% between the age of 35 to 44 years. The level of education on these female patients varied dramatically, those with primary level of education constituting 7% secondary level 7% those with college level of education 46% and no formal education 30%. The occupation of these patients was also focused with civil servants accounting for 12%, self-employed with 30% farmers 28% and house wives 28%.

From the findings of this research the female patients feelings towards TVS is that 30% felt tense towards the procedure, while 12% were upset by the procedure and 53% were worried of the procedure. On the other part the female patients perception in relation to worry of the procedure the following statistics came up, 80% anticipated pain, 90% had affinity of experiencing discomfort and the 97% expressed embarrassed by the procedure and 74 % not sure of what would happen during the procedure. Lastly, on how this procedure will motivate or demotivate the female patients to undergo similar procedure if required it was found out that, only 12% would go for it while 87% disagreed to be redone or subjected to the procedure again. The study revealed that the patients perception that are hinged on feelings was negative when the patients is in context where the patient has no prior knowledge of what TVS is, consequently, perception being dependent on, organization, identification and interpretation of stimuli and in this case endocavitary examination calls for patient prior knowledge to the procedure for it to be acceptable to /by the patient. It is clear that an unfamiliar stimulus generates negative perception by the perceiver, particularly if the stimuli seem to interfere with privacy of the patient.

This study further shows that knowledge of patients on TVS need to maintain an organized, meaningful, and stable view of the whole procedure. It is important to recognize the patient's values and general principles that can provide a framework for knowledge of TVS. Thus enabling attitudes to achieve this goal by making things fit together and make sense to the patient. Which means the knowledge patients undergoing endocavity ultrasound has on this examination influences the attitude she will embrace and how the knowledge influence their choice to undergo the examination. Third is value-expressive, Serves to express one's central values and self-concept. Central values tend to establish our identity and gain us social approval thereby showing us who we are, and what we stand for. Do patients undergoing endocavity ultrasound have value of the examination or not?

Not only will the patient be positive about the procedure when she knows what TVS is to her but also it enables the patients' attitude toward the same to be positive. Although from other studies carried out by Clement et al (2003) shows that most female patient preferred TVS to TAS due to what they perceived as acceptable, in this study the female patient would rather preferred TAS than TVS due to what the perceived as an embarrassing experience and uncomfortable.

Lastly after the endocavity examination the female patient may become selective and open depending on how the whole experience of the procedure was. From the patients perspective the entire procedure would either make her develop positive attitude or negative attitude towards the procedure depending on how the sonographer and the unfamiliar environment made the patient or help the patient understand the procedure. Consequently, the outcome result of the procedure as experienced by the patient with 87 % of the respondents expressing their unwillingness to undergo another endocavitary ultrasound in the future should highlight to the staffs on the need to plan how in the future they can make patients undergoing similar procedure develop positive perceptions and attitudes on the entire procedure.

6. Conclusion and Recommendations

The female patients perception hinged on negative feelings in context when the patient has no prior knowledge of what Transvaginal sonography (TVS) entailed. Endocavitary examination calls for prior patient education or explanation as to what the procedure entails in order to enhance acceptability by the patient. It was worrying, to see that a large number of the clients underwent endocavitary sonography expressed unwillingness to undergo such a procedure in the future. It is possible that in the African context, cultural values come into play on people's perception of invasive diagnostic imaging procedures when it comes to matters of reproductive

health and all procedures involved thereto. If it were not for the diagnostic and medical reasons, the endocavitary procedure may not have a place within the rural settings, but among the elites doing such a procedure on a patient without obtaining informed consent could lead to a flurry of medico-legal pitfalls. The study was not exhaustive enough and therefore more research on the attitude of patients towards endocavitary (transvaginal and transrectal) ultrasound examinations in Kenya need to be carried out in order to see how best the endocavitary procedure may be useful in diagnosis and patient management. Secondly, the radiology departments across the country particularly at rural settings need to embrace effective health communication strategies in order to concretize patient on the presumed new modalities (like TVS) of diagnostic in imaging so that the patient may develop positive dispositions towards the procedure specially endocavitary sonography if their cooperation is to be obtained.

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